WHAT IS CLAIMED IS:

1. A method for preventing or inhibiting neuronal degeneration in the central nervous system or peripheral nervous system for ameliorating the effects of injury or disease, comprising administering to an individual in need thereof at least one active ingredient selected from the group consisting of NS-specific activated T cells; a NS-specific antigen; a peptide derived from a NS-specific antigen; a nucleotide sequence encoding a NS-specific antigen; and a nucleotide sequence encoding a peptide derived from a NS-specific antigen.

2. The method according to claim 1 wherein the injury is selected from the group consisting of spinal cord injury, blunt trauma, penetrating trauma, hemorrhaging stroke, and ischemic stroke.

3. The method according to claim 1 wherein the disease is selected from the group consisting of diabetic neuropathy, senile dementia, Alzheimer's disease, Parkinson's disease, facial nerve palsy, glaucoma, Huntington's chorea, amyotrophic lateral sclerosis, non-arteritic optic neuropathy, and vitamin deficiency.

4. The method according to claim 1 wherein said NS-specific activated T cells are selected from the group consisting of autologous T cells, allogeneic T cells from related donors, and HLA-matched or partially matched semi-allogeneic or fully allogeneic donors.

5. The method according to claim 4 wherein said autologous T cells have been sensitized to human NS antigen.

6. The method according to claim 5 wherein said T cells have previously been taken from an individual, have been sensitized to human NS antigen, and then have been stored for future use.

Sub B8 7. The method according to claim 4 wherein said T cells are autologous T cells.

Sub B10 8. The method according to claim 4 wherein said T cells are semi-allogeneic T cells.

Sub B12 9. The method according to claim 1 wherein said NS-specific antigen is selected from the group consisting of myelin basic protein, myelin oligodendrocyte glycoprotein, proteolipid protein, myelin-associated glycoprotein, S-100, ß-amyloid, Thy-1, P0, P2, and neurotransmitter receptors.

Sub B14 10. The method according to claim 1 wherein said peptide derived from a NS-specific antigen is selected from the group consisting of immunogenic epitopes of said antigen and cryptic epitopes of said antigen.

11. The method according to claim 10 wherein said peptide is an immunogenic epitope or a cryptic epitope derived from myelin basic protein.

12. The method according to claim 10 wherein said peptide corresponds to at least one of the sequences selected from the group consisting of p11-30, p51-70, p91-110, p131-150, and p151-170 of myelin basic protein.

13. The method according to claim 1 wherein the NS-specific antigen or peptide derived therefore is administered intravenously, intraperitoneally, orally, intranasally, intrathecally, intradermally, topically, or bucally.

14. The method according to claim 13 wherein said mucosal administration is selected from the group consisting of oral, intranasal, buccal, vaginal, and rectal administration.

15. The method according to claim 1 wherein myelin basic protein is administered orally.

16. The method according to claim 1 wherein said composition is administered orally and the individual is actively immunized to build up a critical T cell response.

17. A method for preventing or inhibiting neuronal degeneration in the central nervous system or peripheral nervous system comprising administering to an individual in need thereof an effective amount of a composition for up-regulating B7.2 costimulatory molecule or genetically manipulating B7.2 costimulatory molecule in said individual.

18. A cell bank comprising T cells which have been expanded against self central nervous system antigen.

19. A method for providing T cells for inhibiting or preventing neuronal degeneration in the central nervous system or peripheral nervous system for ameliorating the effects of injury or disease comprising:

obtaining T cells from an individual;

activating said T cells against at least one nervous system antigen; and

banking said activated T cells for future use.

20. A composition for preventing or inhibiting neuronal degeneration in the central nervous system or peripheral nervous system for ameliorating the effects of injury or disease, comprising an effective amount of at least one active ingredient selected from the group consisting of

NS-specific activated T cells; a NS-specific antigen; a peptide derived from a NS-specific antigen; a nucleotide sequence encoding a NS-specific antigen; and a nucleotide sequence encoding a peptide derived from a NS-specific antigen.

21. The composition according to claim 20 wherein the injury is selected from the group consisting of spinal cord injury, blunt trauma, penetrating trauma, hemorrhaging stroke, and ischemic stroke.

22. The composition according to claim 20 wherein the disease is selected from the group consisting of diabetic neuropathy, senile dementia, Alzheimer's disease, Parkinson's disease, facial nerve palsy, glaucoma, Huntington's chorea, amyotrophic lateral sclerosis, non-arteritic optic neuropathy, and vitamin deficiency.

23. The composition according to claim 20 wherein said NS-specific activated T cells are selected from the group consisting of autologous T cells, allogeneic T cells from related donors, and HLA-matched or partially matched semi-allogeneic or fully allogeneic donors.

24. The composition according to claim 23 wherein said autologous T cells have been sensitized to human NS antigen.

25. The composition according to claim 24 wherein said T cells have previously been taken from an individual, have been sensitized to human NS antigen, and then have been stored for future use.

26. The composition according to claim 23 wherein said T cells are autologous T cells.

27. The composition according to claim 23 wherein said T cells are semi-allogeneic T cells.

28. The composition according to claim 20 wherein said NS-specific antigen is selected from the group consisting of myelin basic protein, myelin oligodendrocyte glycoprotein, proteolipid protein, myelin-associated glycoprotein, S-100, ß-amyloid, Thy-1, P0, P2, and neurotransmitter receptors.

29. The composition according to claim 20 wherein said peptide derived from a NS-specific antigen is selected from the group consisting of immunogenic epitopes of said antigen and cryptic epitopes of said antigen.

30. The composition according to claim 29 wherein said peptide is an immunogenic epitope or a cryptic epitope derived from myelin basic protein.

31. The composition according to claim 30 wherein said peptide corresponds to at least one of the sequences selected from the group consisting of p11-30, p51-70, p91-110, p131-150, and p151-170 of myelin basic protein.

32. The composition according to claim 20 wherein the NS-specific antigen or peptide derived therefore is administered intravenously, intraperitoneally, orally, intranasally, mucosally, intrathecally, intradermally, topically, or buccally.

33. The composition according to claim 32 wherein said mucosal administration is nasal, intranasal, buccal, vaginal, or rectal.

34. The composition according to claim 20 wherein myelin basic protein is administered orally.

35. The composition according to claim 20 wherein said composition is administered orally and the individual is actively immunized to build up a critical T cell response.

36. A composition according to claim 20 further comprising an effective amount of a composition for up-regulating B7.2 costimulatory molecule or genetically manipulating B7.2 costimulatory molecule in said individual.

37. A cell bank comprising T cells which have been expanded against at least one nervous system antigen.

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